

## Moisture determination in cereals, analytical details, oven drying

### I. Handling of intact kernels and loading of oven

### II. Disintegration, loss of moisture, sampling of meal, disharmony near predrying

#### *Vandbestemmelse i korn, analytiske detaljer vedrørende ovntørring*

*I. Belastning af tørreskab, håndtering af hel kerne og rensning*

*II. Formaling, vandtab, udtagning af melprøver disharmoni i omegnen af fortørring*

CHRESTEN SØRENSEN

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### Summary

#### Part I

The loss of moisture while mixing and dividing kernel samples with less than 17% moisture was small. Even distribution of the sample at predrying was important. Predrying at 30°C for 7 minutes or at 55 or 65°C for 16 hours did not affect total moisture significantly. For ovens of same type the time for warming up differed, and effect of drying varied with 0.1% moisture. Different placement in the oven did not affect the results significantly. An oven volume from 110 to 460 cm<sup>3</sup> per 1 g meal did not affect the results, but the time for warming up decreased. Few moist samples together with more predried samples and vice versa did not influence the results. Samples of barley, wheat, and oat with more than 17% of moisture lost from 0.15 to 0.30% of moisture by cleaning. Loss of moisture at predrying formed a linear relationship with the total moisture content.

**Key words:** Cereals, moisture analysis, predrying, cleaning, grinding, loss of moisture, sampling of meal, disharmony in the area of predrying.

#### Part II

Cooling of mill and reduction of air stream through it reduced loss of moisture by 0.5 and 0.2%, respectively. Variation from 30 to 80% of particles smaller than 0.5 mm corresponded to a difference in moisture of 1% and a loss at grinding on 0.15%. With gentle or forced mixing of meal 0.02 and 1% moisture was lost. Sampling of meal direct from the mill was successful. Sampling of kernels and of meal is discussed. Disharmony at the border between no predrying and including predrying could be overcome by including predrying as routine. Correction for loss at grinding may be appropriate. The loss of moisture at grinding without predrying of a sample with 17% of moisture amounted to shortly 0.3% of moisture.

The paper is printed in English.

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### Summary

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The loss of moisture while mixing and dividing kernel samples with less than 17% moisture was small. Even distribution of the sample at predrying was important. Predrying at 130°C for 7 minutes or at 55 or 65°C for 16 hours did not affect total moisture significantly. For ovens of same type the time for warming up differed, and effect of drying varied with 0.1% moisture. Different placement in the oven did not affect the results significantly. An oven volume from 110 to 460 cm<sup>3</sup> per 1 g meal did not affect the results, but the time for warming up decreased. Few moist samples together with more predried samples and vice versa did not influence the results. Samples of barley, wheat, and oat with more than 17% of moisture lost from 0.15 to 0.30% of moisture by cleaning. Loss of moisture at predrying formed a linear relationship with the total moisture content.

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